ABSTRACT OF THE DISCLOSURE

To minimize the bandwidth (or overhead) of isochronous data transfer in the IEEE 1394 standard and to minimize the signal-less periods (gaps) in asynchronous data transfer, and thereby achieve effective utilization of system resources, the IEEE 1394 interface of a transmitting node acquires the node ID of the root node in the system. Since the actual number of hops is equal to the root node_ID, the arbitration time and the propagation time are calculated based upon the actual number of hops, and from which the bandwidth for isochronous data transfer is determined. Hence, the bandwidth is allocated by the isochronous resource manager node, using the root node_ID to represent the actual number of hops. Gaps for asynchronous data transfer likewise are determined as a function of the actual number of hops that are present in the system, rather than the theoretical maximum number of hops. Thus, the size of the gaps may be reduced.